

# PATENT SPECIFICATION

946,749



DRAWINGS ATTACHED

946,749

Inventor: ERIC GREENWOOD

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## COMPLETE SPECIFICATION

### Improvements in or relating to Moulded Articles

We, THE ENGLISH ELECTRIC COMPANY LIMITED, of Queens House, 28 Kingsway, London, W.C.2, a British Company, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to moulded articles and methods of making same.

According to the invention, a method of moulding an article having a first portion keyed to a second portion includes the steps of moulding said first portion in a first mould comprising a matrix and a removable first core in such a way that said first portion includes a projecting portion and that when said first core is removed said first portion remains in position in the matrix, removing said first core and replacing it by a second core so as to form in conjunction with the matrix and said first portion a second mould defining the said second portion, moulding said second portion in said second mould in a material which is different from that of said first portion so that said projecting portion is embedded in said second portion so as to key together said first and second portions, removing said second core and separating the article from said matrix.

The first portion may comprise at least one character on the periphery of a wheel constituting said second portion. In order to maintain the character in position in the matrix, the character and the matrix may be correspondingly undercut and the character moulded in a flexible material, which may be stripped from the undercut portion of the matrix. Alternatively in the case of an article such as a number wheel for a meter register or cyclometer, which has a set of characters on a surface defined by a generally hollow matrix, the characters may be prevented from leaving the matrix after the first moulding operation by being provided with a member such as a ring or web which unites them. This ring or web serves as a projecting portion for keying

together the characters and the wheel in accordance with one embodiment of the invention. In a number wheel constructed in this manner, stripping from the matrix may be achieved by making the matrix in a number of segments which are removable outwards from the moulded article.

In this specification the expression "colour" is intended to include also black, white and grey.

In order that the invention may be clearly understood one form thereof will now be described with reference to the drawing accompanying the Provisional Specification in which Fig. 1 is a side elevation of a set of moulded characters for the number wheel of an electricity meter register, Fig. 2 is a section on the line A—A of Fig. 1, and Fig. 3 is a view corresponding to Fig. 2 after the set of characters has been incorporated into a moulded wheel, and Fig. 4 is a moulded bearing for completing the wheel shown in Fig. 3.

In Figs. 1 and 2 a set of separate characters consisting of numbers from 0 to 9 is illustrated. As will be seen, each character is attached to a projecting portion constituted by a ring 11 by means of stems 12 so as to form a unitary structure. This structure is produced by moulding in a multi-part matrix surrounding the structure and provided with a removable two-part core which defines the rear faces of the characters and defines also the ring 11 and the stems 12. The stems 12 are thus arranged so as not to overlap the thickness of the characters. The edges of the characters are chamfered, as shown, so as to present parallel side faces for each part of the matrix. This structure is produced as a white moulding preferably by an injection moulding process, and is left in position in the matrix where the characters are held in the complementary parts of the matrix by the ring 11. The two-part core is then removed and replaced by a further core which will define the number wheel 13 shown in Fig. 3. This is moulded in a black material and, as will be seen, the numbers project above the outer surface, as indicated for

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example at 1 and at 6 in Fig. 3. The ring 11 and the stems 12 are embedded in the wheel 13, so that the numbers are effectively keyed to the wheel.

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The wheel 13 is provided with driving teeth 10 14 and with a pair of transfer pegs 15. A central boss 16 is provided and the bore for the reception of the shaft is tapered so as to form a narrow bearing surface 17 at one end. A further component 18 illustrated in Fig. 4 is made 15 as a separate moulding and is pressed into the recess 19 in the boss 16. The component 18 carries a similar narrow bearing surface 20. Thus the friction between the wheel 13 and the shaft upon which it runs is kept to a minimum and the maximum amount of bending in the shaft can be catered for.

If desired the characters may be provided 20 with keying means additional to the stems 12 and ring 11. This may take the form of serrations or dovetail slots on the rear faces of the characters as shown in the character 6 in Fig. 1.

WHAT WE CLAIM IS:—

1. A method of moulding an article having 30 a first portion keyed to a second portion, including the steps of moulding said first portion in a first mould comprising a matrix and a removable first core in such a way that said first portion includes a projecting portion and that when said first core is removed said first portion remains in position in the matrix, removing said first core and replacing it by a second core so as to form in conjunction with the matrix and said first portion a second mould defining the said second portion, moulding said second portion in said second mould in a material which is different from that of said first portion so that said projecting

portion is embedded in said second portion so as to key together said first and second portions, removing said second core and separating the article from said matrix.

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2. A method of moulding an article according to Claim 1 wherein said first portion and said matrix are correspondingly undercut and said first portion is moulded in a flexible material.

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3. A method of moulding an article according to Claim 1 wherein said first mould is arranged to provide a ring or web forming a unitary structure with said first portion, whereby to maintain said first portion in position in said matrix, the ring or web also constituting said projecting portion for keying said first and second portions together.

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4. A method of moulding an article according to any preceding Claim wherein the first core is arranged to provide serrations or dovetail slots on a face of said first portion which is to form part of the second mould.

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5. A method of moulding an article according to any preceding Claim, wherein the material of said first portion differs in colour from the material of said second portion.

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6. A method of moulding an article according to any preceding Claim, wherein said first portion comprises at least one character on the periphery of a wheel constituting said second portion.

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7. A method of moulding an article substantially as herein described with reference to the drawing accompanying the Provisional Specification.

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8. An article when moulded by a method according to any of Claims 1 to 7.

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9. A number wheel for a meter register when moulded by a method according to any of Claims 1 to 7.

F. A. WEBSTER,  
Agent for the Applicants.

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PROVISIONAL SPECIFICATION

1 SHEET

*This drawing is a reproduction of  
the Original on a reduced scale*

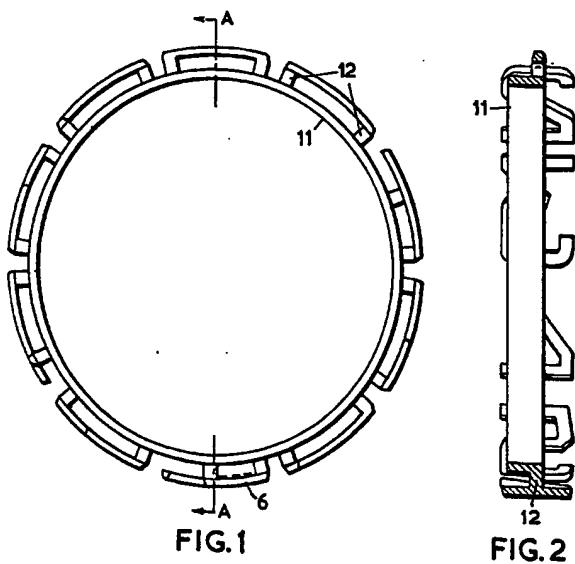


FIG.1

FIG.2

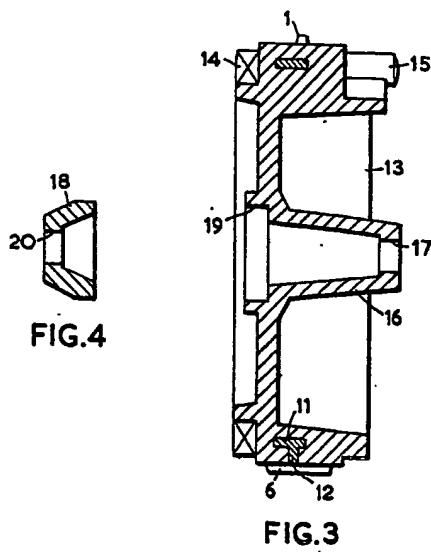


FIG.4

FIG.3